2.2 Operator Directives - Detailed Description

2.2.1 Unix Commands – Detailed Description

Operator Dir

aldev	Show the Allan Deviation of the data in a VSR recording
DESCRIPTION	aldev is a command issued in the UNIX window that computes and plots the Allan file.
SYNTAX	**aldev [-a] [-f] [-s <time>] <bls file name> [total time]** where options are: -a Show a plot of the average frequencies over 1-second intervals -f Show a plot of the FFT amplitude fo the first 1-second record used -s {time} Specify how many seconds into the BLS file before processing (defau **< bls file name> -** specifies the name of a BLS file, found using bls_ls [total time] – specifies the number of 1-second records to process (default: to end
EXAMPLES	**aldev -a 5 v2Ac1N1s053d14p0359n002tS.02-172-175406 2050**
NOTES	The aldev command can be executed at any time from the UNIX window and can b that is open and recording data. It uses gnuplot to plot data (see figures 2.1, 2.2, 2.3 In order to obtain meaningful results, the user should set up an experiment on the V maintains a constant average frequency, where the frequency will only change by th the Allan Deviation utility is trying to measure. The Allan Deviation time interval (tau) is generated using powers of 2 (i.e.,: tau =

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LIMITATIONS	Aldev only works on files that have been recorded with a bandwidth from 1 KHz to Values will be calculated whether or not a signal is present in the recording (i.e., no not there is a frequency drift (see notes), both of which yield results that are not me The last 3-4 points to the right on an Allan Deviation plot will not be accurate due t
RESPONSES	**aldev -afs 5 v2Ac1N1s053d14p0359n002tS.02-172-175406 600** ********** * Allan Deviation Utility * ********** BLS Filename: v2Ac1N1s053d14p0359n002tS.02-172-175406 Size in bytes: 51852720 Number of Records: 12172 (1 second each) Prdx Sky Frequency: 8.415000e+09 Hz Sample Rate: 1000 samples/sec Bits Per Sample: 16 reading data / calculating... Rectangular grid drawn at mx my mx2 my2 tics Major grid drawn with linetype 0, linewidth 1.000 Minor grid drawn with linetype 0, linewidth 1.000 Program Run Time: 00:00:12 Allan Deviation Results: --- 1 Sec Deviation: 1.0095e-13 2 Sec Deviation: 6.5718e-14 4 Sec Deviation: 3.8288e-14

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	8 Sec Deviation: 2.6663e-14 16 Sec Deviation: 1.8448e-14 32 Sec Deviation: 1.4471e-14 64 Sec Deviation: 8.7193e-15 128 Sec Deviation: 1.4248e-15 256 Sec Deviation: 1.9728e-15
REJECTIONS	**Thu Nov 29 12:56:32 - (_db_load_volumes_) - Unable to open volume configur** **Thu Nov 29 12:56:32 - (_db_load_volumes_) - /vsr/cfg/bls_config** **bls_io: db_multi_open error** **Error: bls file 'xxx' not found** No file by this name was found **Sample rate: xxx, too large – not to exceed 100kilo samples/sec.** Can only process data with 100000 samples/sec bandwidth or less.

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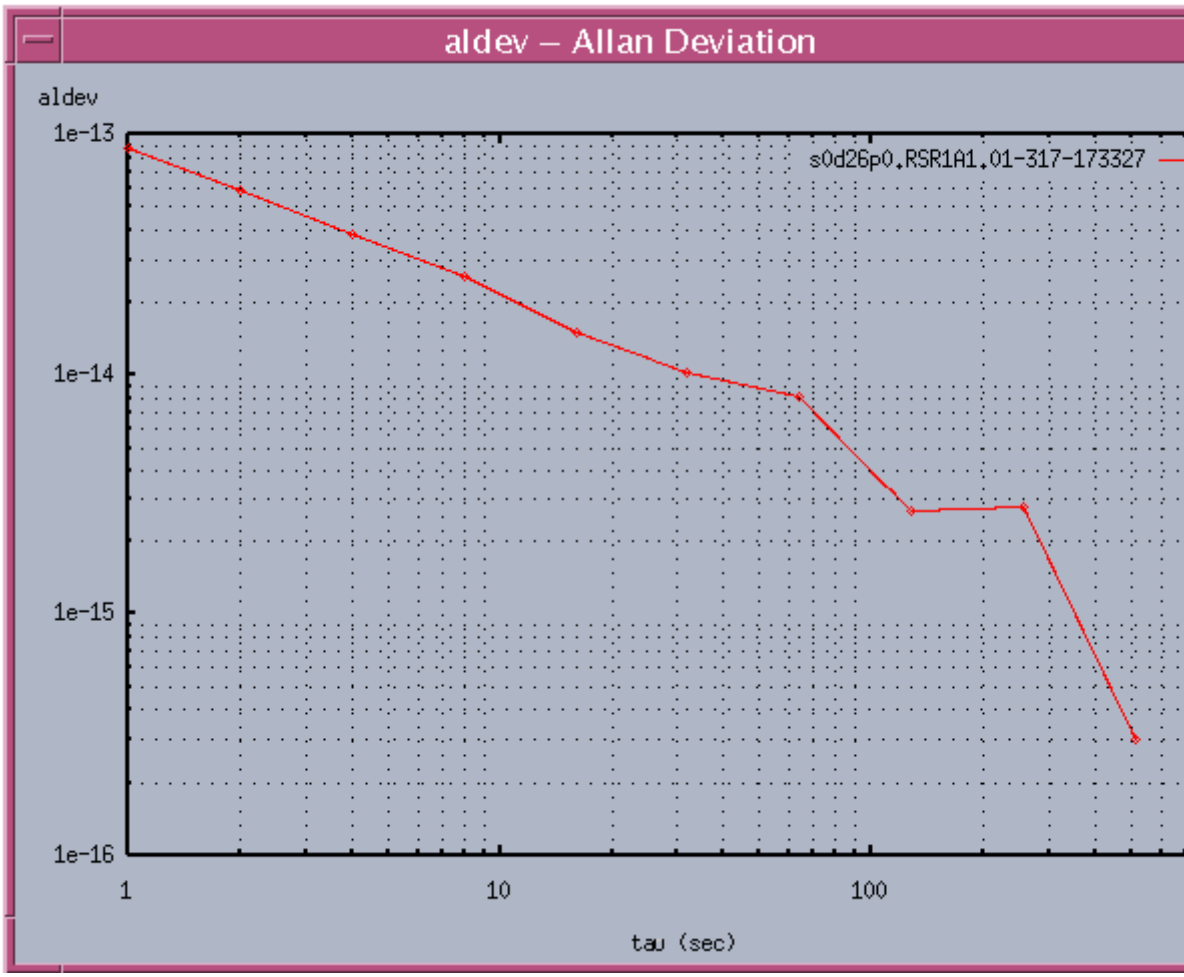

Figure 2-1 Plot of Allan Deviation

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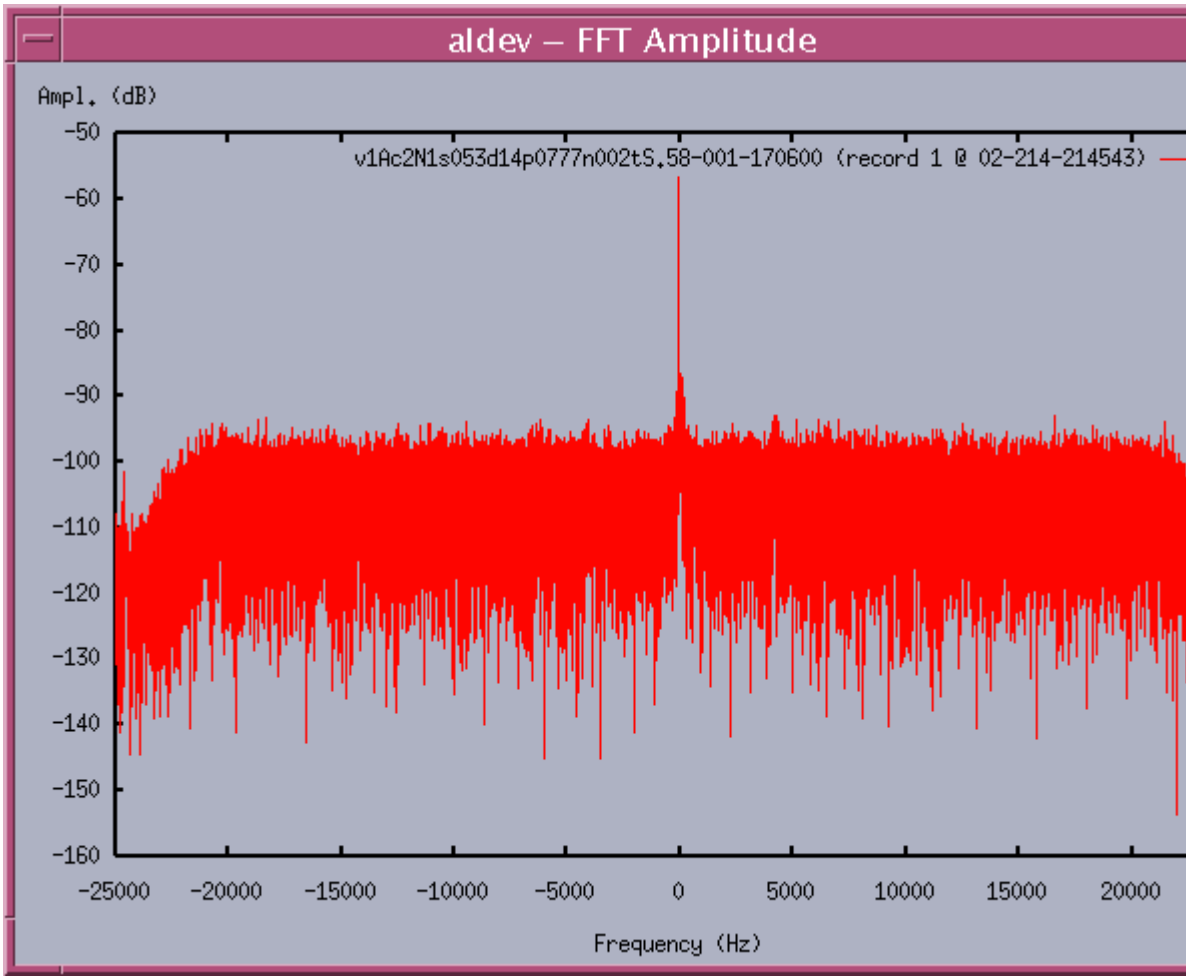

Figure 2-2 Plot of FFT amplitude

aldev	Show the Allan Deviation of the data in a VSR recording

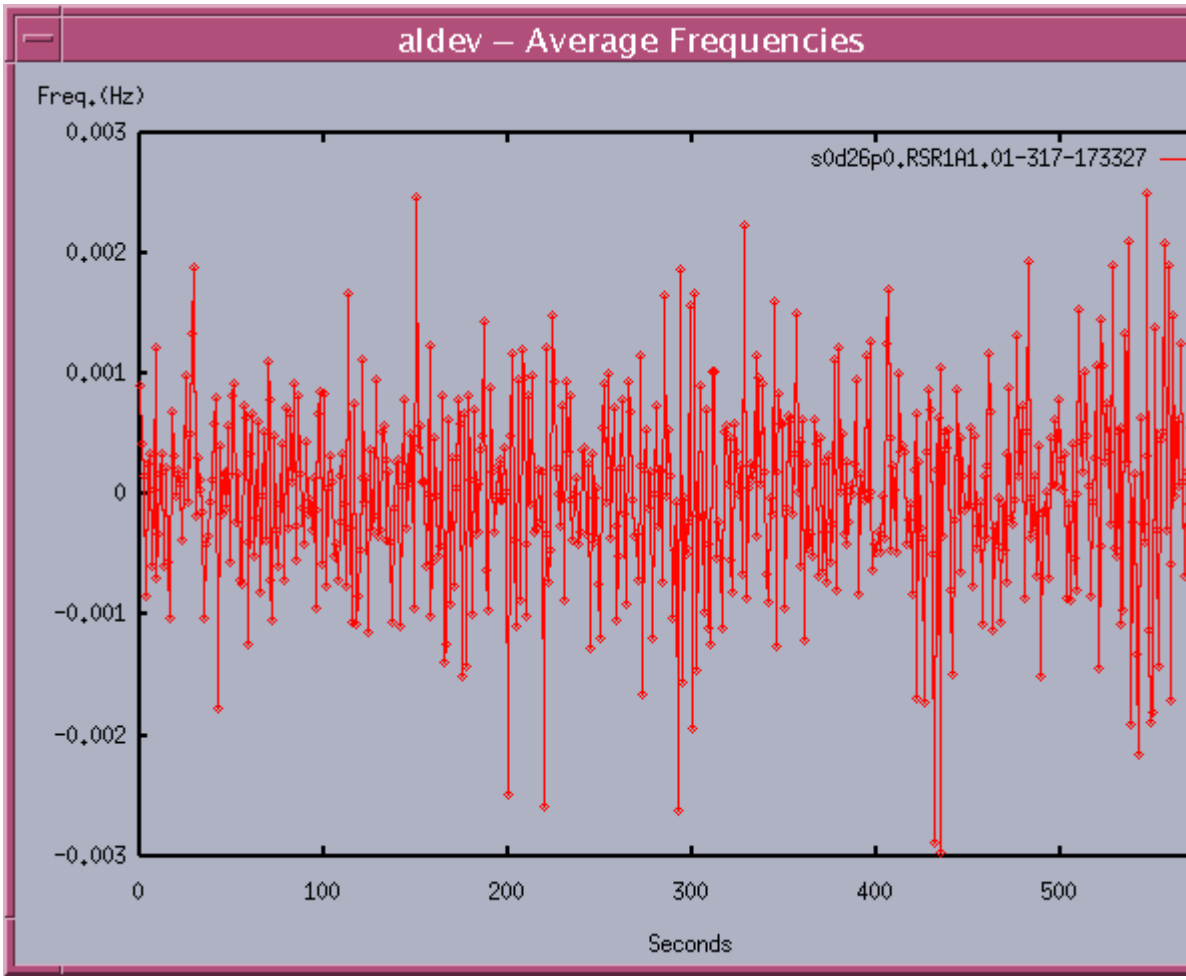

Figure 2-3 Plot of Average Frequencies over 1-second Intervals